Claim 26 represents claim 1, amended to incorporate features of claim 7 and, furthermore, to recite that the oligo- and polynucleotides are prepared by amplification. Claim 41 corresponds to claim 10. Support for the remaining claims presented, hereby, is discussed below, in the context of addressing the issues raised in the Office Action.

Reconsideration of the rejection of claim 8 under 35 USC 101 is requested. Claim 38, presented hereby, corresponds to claim 8, amended to overcome the rejection under §101.

Reconsideration is requested with respect to the rejection of claims 4, 5, 6, 8, 9, and 10 under 35 USC 112, ¶2.

Claims 29 and 31 correct the errors in claims 4 and 5; "O" represents oxygen, not a variable.

Claims 32, 33, and 34 represent the subject matter of claim 6.

Claim 35 limits claim 26 to embodiments wherein the claimed "support" does not comprise (excludes) "a polyT "spacer."

Claim 36 limits the number of different oligo- or polynucleotides to "at least 72," support being found in the present specification at page 4, 3rd complete paragraph.

Claim 37 further limits the number of different oligo- or polynucleotides to "at least 439." The number was calculated from the detailed description starting on page 14. This discloses that the glass slide has a size of 76 X 26 mm. It is further disclosed on page 17, line 2, that the distance from one center to the next is 750 μm and 8 dots were obtained for each cDNA (see page 18, line 8).

Claim 39 corresponds to claim 9, with the subject matter preceded by "preferably" being represented in claim 40.

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Reconsideration is requested with respect to the rejections of claims 1-10 of record under 35 USC 103(a).

The rejections are based on a combination of Guo et al in view of Chrisey et al. Guo discloses an organic Si-compound bound to a benzene derivative. These two compounds correspond to the bifunctional spacer and the homobifunctional linker of the present invention. The nucleic acid is attached via a polyT-"spacer"; see figure 1 of Guo.

In contrast, thereto, the presently claimed invention avoids the polyT "spacer" and, instead, attaches the oligo- and polynucleotide (i) through a primary amino group attached through an alkane having a length of from 6 to 18 methylene groups or (ii) through a polyether having from 2 to 20 repeating units.

As set forth in the papers filed November 9 and December 3, 2002, the method of Guo could not be extended to nucleic acids having a length of 200 to 600 bp. The nucleic acids of Guo are prepared by chemical synthesis. Routine synthesis of nucleic acids cannot reach the length of 200 nucleotides. Therefore, such nucleic acids have to be prepared by an amplification reaction. By using an amplification reaction it is not possible to incorporate the polyT spacer as this spacer would interact with the polyA tail present in normal mRNA.

To summarize it, although Guo discloses a "linker," which corresponds to the bifunctional spacer and bifunctional linker of the presently claimed invention, the chemistry of Guo is not compatible with an amplification procedure for producing the nucleic acids.

Therefore, Guo does not disclose a chemistry suitable for oligonucleotides having a length of 200 to 600 bp, thereby retaining the necessary distance of the oligonucleotide from the surface. This is done by a polyT "spacer" in Guo and by an alkane or polyether as defined in present claim 26.

This deficiency is not overcome by Chrisey et al. This document discloses oligomers having 4 to about 400 bases, typically 20 to about 150 bases and a method for attaching them to a solid support.

It does not disclose any chemistry for attaching oligonucleotides with sufficient distance from the support. Therefore, combining the chemistry of Guo with the disclosure of Chrisey, a person skilled in the art would lack the additional spacer which substitutes the polyT-"spacer" of Guo. Therefore, one would end up with a different bridge between the solid support and the oligonucleotide. In the definition of figures 1 of Guo, such a combination would lack the "spacer".

A sufficient distance from the solid support is necessary to give the oligonucleotides sufficient flexibility to bind nucleic acids in the solution.

Furthermore, although Chrisey discloses oligonucleotides having 4 to 400 bases, it does not disclose to use nucleotides having a unified length throughout the solid support of 200 to 600 bp as claimed in the presently claimed invention .

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Favorable action is requested.

Respectfully submitted,

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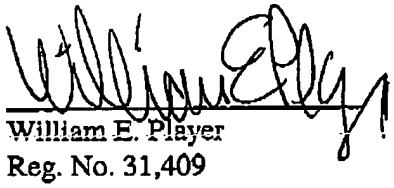
By: 
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ABSTRACT

A support having oligo- or polynucleotides covalently linked at their 5'- or 3'-termini to at least one major surface of the support through bifunctional spacers and bifunctional linkers, is characterized in that the oligo- or polynucleotides covalently linked at their 5'- or 3'-termini through bifunctional spacers and bifunctional linkers have a length of from 200 to 600 bp and the oligo- or polynucleotides can be obtained by a method involving selection of homologous regions of mRNA from a target species and at least one model species; selection of amplification primers allowing the amplification of nucleic acids having a length of from 200 to 600 bp, preferably from 200 to 400 bp, from the homologous regions of both the mRNA from the target species and the mRNA from the at least one model species, the amplification primers optionally having a maximum of 1 mismatch per 6 nucleic acids of the amplification primer; on the at least one major surface of the support, immobilization of the nucleic acids obtained by amplifications of corresponding nucleic acids having a length of from 200 to 600 bp for the target species or the at least one model species using the amplification primers.